

In Darwin's experiments with meat, creatin (and presumably the other nitrogenous extractives of meat) had seemingly no influence.

GENERAL CONCLUSIONS

The results of these experiments indicate the ready digestibility of dry egg-white, fibrin, tendomucoid, and nucleoprotein. Acid-albumin, alkali albuminate, and edestin were digested, but somewhat less readily than the products first named. Collagen and elastin appeared to be entirely indigestible. Even when moistened with meat extract the elastin particles failed to undergo digestive alteration. Creatin did not cause bending of the tentacles.

These observations cannot be directly compared with Darwin's because Darwin dealt with mixtures or crude products.

The proteolytic enzymes of *Drosera* are, like those of other organisms, able to digest some proteins and unable to digest others.

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SPECIES OF GYMNOSPORANGIUM IN SOUTHERN ALABAMA

BY R. E. STONE

While connected with the Alabama Agricultural Experiment Station I became interested in the distribution of certain fungi, especially species of *Gymnosporangium*. The presence of several species of cedar as well as many species of the Pomaceae would indicate that many species of the genus *Gymnosporangium* might be found.

Up to the present time the species reported for Alabama are: *Gymnosporangium macropus* Link, *G. globosum* Farl., *G. Clavipes* C. & P., *G. flaviforme* Atk., and *G. Nidus-avis* Thax. All of these are reported as occurring on *Sabina virginiana* (L.) Antoine.

The presence of *Chamaecyparis thyoides* (L.) B.S.P. and also of *Amelanchier canadensis* (L.) Medic. and *Aronia* (L.) Ell. lead me to believe that *Gymnosporangium biseptatum* Ellis or *Gymno-*

sporangiium Ellisii Berk. might be found. Also the presence of *Sabina barbadense* (L.) Small would indicate that *Gymnosporangium bermudianum* Earle might be collected in the state.

For this reason I made a collecting trip into southern Alabama early in March, 1908, for the purpose of gathering material. In order to become acquainted with *Gymnosporangium bermudianum* as it occurs on its host, *Sabina barbadense*, I went first to Biloxi, Miss., the type locality for this species.

While on the trip I discovered some new combinations.

NEW HOSTS

Gymnosporangium macropus Link, on *Sabina barbadense* (L.) Small (new host).

Collections were made at Biloxi, Miss., March 3, 1908; Coden, Ala., March 6, 1908; Bayou Labatre, Ala., March 8, 1908.

At Biloxi, Miss., the *Gymnosporangium macropus* and *Gymnosporangium bermudianum* were found growing on the same tree.

Gymnosporangium globosum Farl., on *Sabina barbadense* (L.) Small (new host).

Collections were made at Biloxi, Miss., March 3, 1908, and Bayou Labatre, Ala., March 6, 1908.

On this trip the gap in the known distribution of *Gymnosporangium bermudianum* was partly filled out by collections made at Bayou Labatre, Ala., March 6, 1908, and at Spring Hill, Ala., March 8. The collections of this species are complete enough now to enable us to say that it occurs all along the Gulf Coast from Florida to Louisiana. The species probably extends west to Texas and perhaps farther.

Perhaps the most important collections, as far as extending the known range of certain species is concerned, were those of the two species of *Gymnosporangium* found on the white cedar, *Chamaecyparis thyoides* (L.) B.S.P. As stated previously, the presence of the white cedar and both *Amelanchier canadensis* and *Aronia arbutifolia* gave the requisite conditions for either one or both of the two species to be found. However since neither had been collected in the south my hope of finding them was small indeed.

On March 8, 1908, while collecting in a swamp between Mobile, Ala., and Spring Hill, a suburb of that place, I secured some very fine specimens of *Gymnosporangium Ellisii* Berk., on *Chamaecyparis thyoides* (L.) B.S.P. The same day I secured at Spring Hill a very good specimen of *Gymnosporangium biseptatum* Ellis, on the same host. As I was in a hurry at the time, in order to get out of a storm, I did not fully appreciate the find until I had returned to my laboratory at Auburn, Ala. I have not had another opportunity to secure more of this material.

Now neither of these species has been collected farther south than New Jersey. It would seem improbable that such a wide gap as this, from New Jersey to Alabama, would occur in the distribution of either of these species, especially when the white cedar occurs all along the coast between these points and the alternate host plants are usually found in the same localities, at least the range given in the various manuals would seem to show this. It is probable that both of these species, *G. biseptatum* and *G. Ellisii* occur all along the whole coast from Maine to Texas. Careful search, I am sure, would fill in the gap in the known distribution if not extending it.

Summing up the situation for Alabama we can report the following species of *Gymnosporangium*.

Gymnosporangium macropus Link on *Sabina virginiana* (L.) Antoine. *Sabina barbadense* (L.) Small (new host).

Gymnosporangium globosum Farl. on *Sabina virginiana* (L.) Antoine. *Sabina barbadense* (L.) Small (new host).

Gymnosporangium flaviforme Atk. on *Sabina virginiana* (L.) Antoine.

Gymnosporangium Clavipes C. & P. on *Sabina virginiana*. (L.) Antoine.

Gymnosporangium Nidus-avis Thax. on *Sabina virginiana* (L.) Antoine.

Gymnosporangium bermudianum Earle on *Sabina barbadense* (L.) Small.

Gymnosporangium biseptatum Ellis on *Chamaecyparis thyoides* (L.) B.S.P.

Gymnosporangium Ellisii Berk. on *Chamaecyparis thyoides* (L.) B.S.P.

Specimens of *G. globosum* and *G. macropus* on *Sabina barbadense* as well as specimens of *G. biseptatum* and *G. Ellisii* have been deposited in the following herbaria: Prof. A. B. Seymour, Cambridge, Mass.; Dr. J. C. Arthur, Purdue University, Lafayette, Ind.; Prof. S. M. Tracy, Biloxi, Miss.; Prof. F. E. Lloyd, Alabama Polytechnic Institute, Auburn, Ala.; Dr. E. M. Wilcox, Pathology Herbarium, University of Nebraska, Lincoln, Nebr.

I still have a few good specimens of *G. Ellisii* in my own collection.

I am still greatly interested in securing specimens of both *G. biseptatum* and *G. Ellisii*, especially from the region between New Jersey and Alabama and west to Texas, and any information of such collections would be greatly appreciated.

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FOSSIL EUPHORBIACEAE, WITH A NOTE ON SAURURACEAE *

BY T. D. A. COCKERELL

Up to the present time, no Euphorbiaceae have been described from the American Tertiaries, although from their present abundance and wide distribution there can be no doubt that they have long existed on this continent. Most of the plant-bearing strata are very poor in herbaceous forms, but Florissant is more fortunate in this respect, and has already yielded us a number of low-growing genera not elsewhere known fossil. Among the recently gathered materials I have been glad to find a couple of species which appear to be certainly Euphorbiaceous.

Acalypha myricina sp. nov.

Leaf lanceolate, the blade about 22 mm. long and 8 broad, on a short curved petiole; general form very much as in *A. gracilens* Gray; surface densely glandular-pitted; margin with very short blunt dark-colored gland-teeth; three prominent nervures, running nearly parallel. The figure shows the details better than they can be described.

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